

April 5, 2000

Sir:

Transmitted herewith for filing is the Patent Application of:

Inventor(s): **Rabindranath Dutta**

For: **Sending Full-Content Data to a Second Data Processing System While Viewing Reduced-Content Data on a First Data Processing System**

Enclosed are:

☒ Patent Specification and Declaration

☒ 5 sheets of drawing(s).

☒ An assignment of the invention to International Business Machines Corporation (includes Recordation Form Cover Sheet).

☐ A certified copy of a ☐ application.

☐ Information Disclosure Statement, PTO 1449 and copies of references.

The filing fee has been calculated as shown below:

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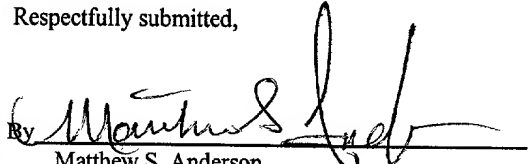
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T. Dena

Respectfully submitted,

By   
Matthew S. Anderson  
Registration No. 39,093 for  
FELSMAN, BRADLEY, VADEN,  
GUNTER & DILLON, LLP  
201 Main Street, Suite 1600  
Fort Worth, Texas 76102  
Telephone (817) 332-8143

SENDING FULL-CONTENT DATA TO A SECOND DATA PROCESSING SYSTEM  
WHILE VIEWING REDUCED-CONTENT DATA ON A FIRST DATA  
PROCESSING SYSTEM

5

## BACKGROUND OF THE INVENTION

## 1. Technical Field:

10 The present invention generally relates to improved  
networked computer systems and in particular to improved  
wireless communications over networked computer systems.  
Still more particularly, the present invention relates to  
improved communications over a combination of wired and  
wireless data processing systems.

## 2. Description of the Related Art:

20 In today's society, the use of the internet and the  
World Wide Web (WWW or Web) have become pervasive. The Web,  
a global network of interconnected computer systems which  
communicate using common protocols and addressing means,  
allows users to receive information on almost any topic at  
the press of a button or the click of a mouse, and is  
becoming the research tool of choice for many users.

25

Further, the Web is being used more every day as a  
means to transact business, make purchases, manage  
investments, and perform other interactive tasks. A user is  
increasingly able to perform almost any type of personal or

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business transaction simply by using his client-side data processing system to access a server system to perform the transaction on-line.

5           Internet use is no longer limited to wired connections such as analog Plain-Old-Telephone-System (POTS) modems, ISDN, and xDSL. Every day, it is becoming more common for users to access the internet via portable data processing systems that use a wireless connection to the internet. One  
10 common example of this is a typical laptop computer systems with a modem that is connected to a wireless telephone. Relatively new examples of this technology are wireless digital telephones and handheld computers with integrated access to the internet over a wireless digital network. These systems use a simplified Web browser which is modified  
15 to accommodate the limited display capabilities of the systems.

20           For example, the PalmPilot® family of PDA systems has Web browsing software like the HandWeb and ProxiWeb. Windows CE and some digital PCS telephones also have Web browsing software.

25           One significant drawback to using these wireless devices to connect to the internet is that the cost of wireless communication systems are prohibitively high. In some common wireless systems, the cost-per-byte for content delivery is very high relative to wired systems or voice communications. To address this, most wireless devices use  
30 some mechanism to reduce the amount of data downloaded from

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a given website. Common techniques include accessing websites which have content specially designed for wireless devices, with simplified menu options and reduced amounts of text. Another technique is that of "Web clipping," which is essentially the dilution of Web content to essential truncated text. Further, most wireless browsers eliminate any graphics from the website displayed.

The cost differential between wired and wireless internet systems makes these sort of approaches attractive. While wired connections have become relatively inexpensive, even for "dedicated" connections that are continually connected to the internet, wireless systems are still very expensive, and are generally billed either by the length of time the user is connected to the internet, the amount of data transferred, or both. The content-reduction techniques outlined above are used to minimize the cost of the connections.

An unfortunate side effect of these approaches is that the user loses a great deal of the content he was seeking in the first place. While these techniques generally allow the user to perform some basic functions or retrieve some limited information, the user is prevented from seeing the websites in their entirety or from seeing any accompanying graphics or illustrations. Further, the more content he does display on the wireless connection, the more expensive it is.

Often, in order for the user to see the entire web page

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he was looking for, the user must access the web from a  
wired data processing system, and look up each page from  
that connection in order to fully view or print it. Because  
of the "hyperlinked" nature of the Web, it is often  
5 difficult for a user to relocate a particular page on the  
wired system that he had viewed on the wireless system. It  
would therefore be desirable to provide a means for a user  
to easily coordinate the use of a wireless internet  
connection with the use of a less-expensive wired internet  
10 connection, so that web pages can be viewed less expensively  
and without unnecessary inefficiency. Even more desirable  
would be a means for a user to easily coordinate the use of  
both a relatively expensive and relatively inexpensive  
connection, whether the distinction be connection speed,  
5 connection method, or otherwise, so that the data can be  
transferred and used less expensively and without  
unnecessary inefficiency.

## SUMMARY OF THE INVENTION

It is therefore one object of the present invention to provide improved networked computer systems.

It is another object of the present invention to provide improved wireless communications over networked computer systems.

It is yet another object of the present invention to provide improved communications over more and less expensive data processing system communication means.

The foregoing objects are achieved as is now described. The preferred embodiment provides a system, method, and computer program product which allows a user to view and navigate reduced-content web pages on a wireless connection. Upon the user's selection of specific web pages, the pages are then delivered to the user by a less expensive connection, as in a conventional wired internet connection. The delivery is accomplished by several methods, according to different embodiments, including by an electronic mail message, by "push" delivery to an internet-connected data processing system, and by providing a set of hyperlinks to the wired internet connection which reference the selected pages, among other methods. The user is thereby able to view at a later time, on a second internet-connected data processing system, the data selected when using the wireless internet-connected data processing system.

The above as well as additional objectives, features, and advantages of the present invention will become apparent in the following detailed written description.

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## BRIEF DESCRIPTION OF THE DRAWINGS

The novel features believed characteristic of the invention are set forth in the appended claims. The invention itself however, as well as a preferred mode of use, further objects and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

**Figure 1A** depicts a data processing system in accordance with a preferred embodiment of the present invention;

**Figure 1B** depicts a mobile computing device in accordance with a preferred embodiment of the present invention;

**Figure 2** is block diagram of internet-connected wired and wireless devices, in accordance with a preferred embodiment of the present invention;

**Figure 3** is flowchart of a process in accordance with a preferred embodiment of the present invention; and

**Figures 4A and 4B** show exemplary full-content and reduced-content displays, respectively, in accordance with a preferred embodiment of the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the figures, and in particular with reference to **Figure 1A**, a block diagram of a data processing system in which a preferred embodiment of the present invention may be implemented is depicted. Data processing system **100** includes processor **102** and associated L2 Cache **104**, which in the exemplary embodiment is connected in turn to a system bus **106**. System memory **108** is connected to system bus **106**, and may be read from and written to by processor **102**.

Also connected to system bus **106** is I/O bus bridge **110**. In the exemplary embodiment, data processing system **100** includes graphics adapter **118** connected to bus **106**, receiving user interface information for display **120**. Peripheral devices such as nonvolatile storage **114**, which may be a hard disk drive, and keyboard/pointing device **116**, which may include a conventional mouse, a trackball, or the like, are connected to I/O bus **112**.

Also connected to I/O bus **122** is internet connection **130**. This connection can be implemented in any number of ways, including an analog modem, a cable modem, xDSL, T1, a wireless device, and others.

The exemplary embodiment shown in **Figure 1A** is provided solely for the purposes of explaining the invention and those skilled in the art will recognize that numerous variations are

possible, both in form and function. For instance, data processing system 100 might also include a compact disk read-only memory (CD-ROM) or digital video disk (DVD) drive, a sound card and audio speakers, and numerous other optional components. All such variations are believed to be within the spirit and scope of the present invention. Data processing system 100 is provided solely as an example for the purposes of explanation and is not intended to imply architectural limitations. A data processing system as described above can function both as a client system and a server system in the embodiments described below, when connected to a computer network such as an intranet or the Internet. Of course, the data processing systems described below, and in particular the client data processing system, may be implemented in a mobile telephone, a handheld system such as a personal digital assistant, or other portable or handheld data processing system, as long as it can perform the claimed functions.

**Figure 1B** shows a block diagram of a mobile computing device in which the preferred embodiment of the invention may be implemented. The mobile communications device comprises a display 150 which is written to by a processor 152. The processor 152 is also able to read from and write to memory 154 and non-volatile storage 156. Communications block 158 is a wireless communications system, and is connected to allow the processor to communicate over a wireless network. User input device 160, which can be a keypad, a touchpad, or other types of input device, is connected to allow the user to interact with the programs being executed by the processor

152.

5 The mobile communications device shown in **Figure 1B** can be a mobile telephone, a PDA device, or a portable data processing system. The block diagram of **Figure 1B** does not show other components of the communications device which are not particular to the preferred embodiment. For example, the mobile communications device can be a mobile telephone, but the telephone-specific components, such as a dialing keypad, are not shown. Further, the elements shown in this diagram are not necessarily integral to the device; for example, the wireless communications system may be an external modem connected to a wireless telephone.

10  
15 The preferred embodiment provides a system and method which allows a user to view and navigate reduced-content web pages on a wireless connection. Upon the user's selection of specific web pages, the pages are then delivered to the user by a less expensive connection, as in a conventional wired internet connection. The delivery is accomplished by several methods, according to different embodiments, including by an electronic mail message, by "push" delivery to an internet-connected data processing system, and by providing a set of hyperlinks to the wired internet connection which reference the selected pages, among other methods. The user is thereby able to view, on a second internet-connected data processing system, the data selected when using the wireless internet-connected data processing system.

**Figure 2** shows a block diagram of the internet **200** and connected devices. The connected devices include data processing systems **205** and **210**, which are connected by a wired system **215**, which can be a POTS system, xDSL, T1, cable, fiber optic, or other wired system. Proxy server **260** is connected to the internet **200** by a wired connection **215**. The proxy server **260** performs the content-management functions as described herein, and is connected between the internet and the wireless devices. Wireless devices include telephone **220**, handheld PDA **225**, and portable data processing system **230**, which are each connected over respective wireless connections **235**. Of course, the wireless connections **235** may differ between devices in terms of protocol, speed, and other means, but are shown here in common form for the sake of simplicity. Further, other types of wireless and wired devices which support internet communications can be connected to the systems above, within the scope of the invention.

When content is displayed on a Web client connected over an expensive wireless connection **235**, the preferred embodiment provides that proxy server **260** will enable the Web client running on the connected device **220/225/230** to download only truncated information for reading immediately, and have the full content delivered by e-mail or push to a different system. The different system, such as data processing system **205** or **210**, is connected to the internet, in the preferred embodiment, by a much less expensive means, for example by a wired system **215**. In this way, the full content can be read at a later time, on the less expensive system.

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5 The proxy server 260 receives content data from the  
internet and intended for the wireless devices, and produces  
truncated/reduced content versions of this data. According to  
the preferred embodiment, the content data received is in  
conventional Hypertext Markup Language (HTML), and the reduced  
content version is in Wireless Markup Language (WML). WML is  
a markup language intended for use in specifying content and  
user interface for narrowband devices, including cellular  
phones and pagers. Every truncated item delivered to a client  
10 220/225/230 over an expensive connection such as wireless  
system 235, includes a special mark or other user setting  
that, when selected by the user, results in offline delivery  
of the full content (or alternative content) via e-mail or  
push to a different computer system connected cheaply to the  
Internet. The user may choose that, by default, every  
15 reduced-content page he views is also delivered, in full form,  
to the other system.

20 Alternatively, a hyperlink bookmark to each page the user  
has received in truncated form can be stored, and later  
downloaded or delivered to the system with the less expensive  
internet connection, so that the full-content pages can be  
viewed at leisure on that system.

25 In this manner, the user is able to act more efficiently  
and less expensively by reading essential content immediately  
while reading extensive content later on. Because the user is  
able to select the content to be delivered to the alternate  
system, he is not forced to try to manually find the content  
30 again at a later time, which can waste a great deal of time.

**Figure 3** is a flowchart of a process in accordance with the preferred embodiment of the present invention. In this flowchart, it is assumed that the user is accessing the Internet via a wireless devices such as those discussed with reference to **Figure 2**. These wireless devices will typically use a proxy server to access web sites. The proxy server has the ability to convert the standard full-content web-pages to the reduced-content web pages described above.

When the user is accessing the internet with the wireless device, or other relatively more expensive connection, the wireless device will request a web page (**step 310**). The proxy server will then process the web page, and compose a reduced-content version of the page (**step 320**). Next, the proxy server determines if the user has set the system to send, automatically or by default, a full-content version of the web pages to a wired or less-expensive connection (**step 330**).

If the user has not selected automatic or default alternate delivery, the proxy server will deliver the reduced content page, together with a selection mark, to the wireless device (**step 340**). Of course, the selection mark can be added to the content of the reduced content page, or a flag can be sent with the page which indicates that the wireless device should give the user a selection option when the page is displayed.

When the page is displayed, the user can select the selection mark, or otherwise select the page, depending on how

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the option is displayed to the user. If the user selects the page by selecting the selection mark or otherwise (**step 350**), the server will deliver the full-content version of the page to the user's alternate system (**step 370**). The delivery may be by email, push delivery, or the pages, or links to the pages, may be stored on a server. The user may then navigate to the next page (**step 310**).

If the user has selected automatic or default alternate delivery (**step 330**), the system will then deliver the reduced content page to the wireless device (**step 360**). No selector mark is included. The server will then deliver the full-content version of the page to the user's alternate system (**step 370**). The user may then navigate to the next page (**step 310**).

The user can then, at a later time, read the full content of the selected pages on the system with the less-expensive connection. While the delivery to the alternate system may be substantially simultaneous with the selection of the page on the more-expensive connection, the user will not typically view these pages until a later time; it is assumed that the user does not have immediate access to the less-expensive alternative. Thus, while **step 370**, above, may occur at a later time, the user can continue to navigate on his wireless device (at **step 310**).

**Figures 4A and 4B** show exemplary full-content and reduced-content displays, respectively, in accordance with a

preferred embodiment of the present invention. **Figure 4A** shows a sample display **400**, as might be shown on a typical data processing system. In this example, the user has requested information about the stock performance of IBM Corporation. The full content page shows both introductory text **405** and current stock-ticker information **410**. While the user might appreciate the introductory information on a system that is cheaply connected to the internet, as described above, he will often prefer to only receive the essential data when connected over a wireless or other expensive connection.

**Figure 4B** shows a sample reduced-content page, corresponding to that of **Figure 4A**, and as described above. Here, a handheld PDA system **450** is shown, along displaying a reduced content page concerning the stock performance of IBM Corporation. On the reduced content display, only the essential stock-ticker information **455** is shown, which is much less expensive to receive over a wireless connection. Note also the selection mark **460**. If the user selects the mark **460**, as by tapping on it with a stylus or by other conventional means, the full-content page (as shown in **Figure 4A**) is delivered to the users alternate system, as described above.

It is important to note that while the present invention has been described in the context of a fully functional data processing system and/or network, those skilled in the art will appreciate that the mechanism of the present invention is capable of being distributed in the form of a computer usable

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medium of instructions in a variety of forms, and that the present invention applies equally regardless of the particular type of signal bearing medium used to actually carry out the distribution. Examples of computer usable mediums include:

5 nonvolatile, hard-coded type mediums such as read only memories (ROMs) or erasable, electrically programmable read only memories (EEPROMs), recordable type mediums such as floppy disks, hard disk drives and CD-ROMs, and transmission type mediums such as digital and analog communication links.

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While the invention has been particularly shown and described with reference to a preferred embodiment, it will be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention.

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CLAIMS:

What is claimed is:

1       1.    A method for delivering data over a network system,  
2       comprising the steps of:

3            receiving, in a data processing system, a request for a  
4       first data page from a first client system;

5            sending a reduced-content page, corresponding to the  
6       first data page, to the first client system; and

7            sending the first data page to a second client system,  
8       wherein the first client system communicates with the  
9       data processing system over a more expensive connection than  
10      the second client system communicates with the data processing  
11      system.

1       2.    The method of claim 1, further comprising, after the  
2       receiving step, the step of creating a reduced-content page  
3       corresponding to the first data page.

1       3.    The method of claim 1, wherein the network system is the  
2       internet.

1       4.    The method of claim 1, wherein the first data processing  
2       system communicates via a wireless connection.

1       5.    The method of claim 1, wherein the reduced content page  
2       is a wireless markup language page.

1       6.    The method of claim 1, wherein the first data page is a  
2       hypertext markup language page.

1        7.    The method of claim 1, wherein the first data page is  
2        sent to the second client system via an electronic mail  
3        message.

1        8.    The method of claim 1, wherein the first data page is  
2        sent to the second client system via a push delivery system.

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1 9. A data processing system having at least a processor and  
2 an accessible memory, comprising:

3 means for receiving, in a data processing system, a  
4 request for a first data page from a first client system;

5 means for sending a reduced-content page, corresponding  
6 to the first data page, to the first client system; and

7 means for sending the first data page to a second client  
8 system,

9 wherein the first client system communicates with the  
10 data processing system over a more expensive connection than  
11 the second client system communicates with the data processing  
12 system.

1 10. The data processing system of claim 9, further comprising  
2 means for creating a reduced-content page corresponding to the  
3 first data page.

1 11. The data processing system of claim 9, wherein the  
2 network system is the internet.

1 12. The data processing system of claim 9, wherein the first  
2 data processing system communicates via a wireless connection.

1 13. The data processing system of claim 9, wherein the  
2 reduced content page is a wireless markup language page.

1 14. The data processing system of claim 9, wherein the first  
2 data page is a hypertext markup language page.

1        16. The data processing system of claim 9, wherein the first  
2        data page is sent to the second client system via a push  
3        delivery system.

|   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

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1 17. A computer program product having computer-readable code  
2 on a computer-readable medium, comprising:

3 instructions for receiving, in a data processing system,  
4 a request for a first data page from a first client system;

5 instructions for sending a reduced-content page,  
6 corresponding to the first data page, to the first client  
7 system; and

8 instructions for sending the first data page to a second  
9 client system,

10 wherein the first client system communicates with the  
11 data processing system over a more expensive connection than  
12 the second client system communicates with the data processing  
13 system.

1 18. The computer program product of claim 17, further  
2 comprising instructions for creating a reduced-content page  
3 corresponding to the first data page.

1 19. The computer program product of claim 17, wherein the  
2 network system is the internet.

1 20. The computer program product of claim 17, wherein the  
2 first data processing system communicates via a wireless  
3 connection.

1 21. The computer program product of claim 17, wherein the  
2 reduced content page is a wireless markup language page.

1 22. The computer program product of claim 17, wherein the  
2 first data page is a hypertext markup language page.

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1        23. The computer program product of claim 17, wherein the  
2        first data page is sent to the second client system via an  
3        electronic mail message.

1        24. The computer program product of claim 17, wherein the  
2        first data page is sent to the second client system via a push  
3        delivery system.

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1 25. A method for delivering data over a network system,  
2 comprising the steps of:

3 receiving, in a data processing system, a request for a  
4 first data page from a first client system;

5 sending a reduced-content page, corresponding to the  
6 first data page, to the first client system; and

7 selectively sending a selection mark to the first client  
8 system;

9 if a request corresponding to the selection mark is  
10 received, then sending the first data page to a second client  
11 system,

12 wherein the first client system communicates with the  
13 data processing system over a more expensive connection than  
14 the second client system communicates with the data processing  
15 system.

1 26. The method of claim 9, further comprising, after the  
2 receiving step, the step of creating a reduced-content page  
3 corresponding to the first data page.

1 27. The method of claim 9, wherein the network system is the  
2 internet.

1 28. The method of claim 9, wherein the first data processing  
2 system communicates via a wireless connection.

1 29. The method of claim 9, wherein the first data page is a  
2 hypertext markup language page.



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1 33. A data processing system having at least a processor and  
2 an accessible memory, comprising:

3 means for receiving, in the data processing system, a  
4 request for a first data page from a first client system;

5 means for creating a reduced-content second data page  
6 corresponding to the first data page;

7 means for sending the second data page to the first  
8 client system;

9 means for selectively sending a selection mark to the  
10 first client system;

11 means for sending the first data page to a second client  
12 system, if a request corresponding to the selection mark is  
13 received,

14 wherein the first client system communicates with the  
15 data processing system over a more expensive connection than  
16 the second client system communicates with the data processing  
17 system.

1 34. The data processing system of claim 17, further  
2 comprising means for creating a reduced-content page  
3 corresponding to the first data page.

1 35. The data processing system of claim 17, wherein the  
2 network system is the internet.

1 36. The data processing system of claim 17, wherein the first  
2 data processing system communicates via a wireless connection.

1 37. The data processing system of claim 17, wherein the first  
2 data page is a hypertext markup language page.

1        38. The method of claim 17, wherein the reduced content page  
2        is a wireless markup language page.

1        39. The data processing system of claim 17, wherein the first  
2        data page is sent to the second client system via an  
3        electronic mail message.

1        40. The data processing system of claim 17, wherein the first  
2        data page is sent to the second client system via a push  
3        delivery system.

|   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

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4 41. A computer program product having computer-readable code  
5 on a computer-readable medium, comprising:

6 instructions for receiving, in a data processing system,  
7 a request for a first data page from a first client system;

8 instructions for creating a reduced-content second data  
9 page corresponding to the first data page;

10 instructions for sending the second data page to the  
11 first client system;

12 instructions for selectively sending a selection mark to  
13 the first client system;

14 instructions for sending the first data page to a second  
15 client system, if a request corresponding to the selection  
16 mark is received,

17 wherein the first client system communicates with the  
18 data processing system over a more expensive connection than  
19 the second client system communicates with the data processing  
20 system.

21 42. The computer program product of claim 25, further  
22 comprising instructions for creating a reduced-content page  
23 corresponding to the first data page.

1 43. The computer program product of claim 25, wherein the  
2 network system is the internet.

1 44. The computer program product of claim 25, wherein the  
2 first data processing system communicates via a wireless  
3 connection.

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1 45. The computer program product of claim 25, wherein the  
2 first data page is a hypertext markup language page.

1 46. The computer program product of claim 25, wherein the  
2 reduced content page is a wireless markup language page.

1 47. The computer program product of claim 25, wherein the  
2 first data page is sent to the second client system via an  
3 electronic mail message.

1 48. The computer program product of claim 25, wherein the  
2 first data page is sent to the second client system via a push  
3 delivery system.

1 49. A method for network communications, comprising the steps  
2 of:

3 sending, over a first communications link and from a  
4 first data processing system, a request for a first data page;

5 receiving, over the first communications like, a reduced-  
6 content data page corresponding to the first data page; and

7 selectively requesting the first data page to be sent to  
8 a second data processing system, the second data processing  
9 system being connected to a second communications link and the  
10 second communications like being less expensive than the first  
11 communications link.

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1 50. A data processing system having at least a processor and  
2 an accessible memory, comprising:

3 means for sending, over a first communications link and  
4 from a first data processing system, a request for a first  
5 data page;

6 means for receiving, over the first communications like,  
7 a reduced-content data page corresponding to the first data  
8 page; and

9 means for selectively requesting the first data page to  
10 be sent to a second data processing system, the second data  
11 processing system being connected to a second communications  
12 link and the second communications like being less expensive  
13 than the first communications link.

1 51. A computer program product having computer-readable code  
2 on a computer-readable medium, comprising:

3 instructions for sending, over a first communications  
4 link and from a first data processing system, a request for a  
5 first data page;

6 instructions for receiving, over the first communications  
7 like, a reduced-content data page corresponding to the first  
8 data page; and

9 instructions for selectively requesting the first data  
10 page to be sent to a second data processing system, the second  
11 data processing system being connected to a second  
12 communications link and the second communications like being  
13 less expensive than the first communications link.

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SENDING FULL-CONTENT DATA TO A SECOND DATA PROCESSING SYSTEM  
WHILE VIEWING REDUCED-CONTENT DATA ON A FIRST DATA  
PROCESSING SYSTEM

**ABSTRACT OF THE DISCLOSURE**

5           A system, method, and computer program product which  
allows a user to view and navigate reduced-content web pages  
on a wireless connection. Upon the user's selection of  
specific web pages, the pages are then delivered to the user  
by a less expensive connection, as in a conventional wired  
10 internet connection. The delivery is accomplished by several  
methods, according to different embodiments, including by an  
electronic mail message, by "push" delivery to an internet-  
connected data processing system, and by providing a set of  
hyperlinks to the wired internet connection which reference  
15 the selected pages, among other methods. The user is thereby  
able to view, on a second internet-connected data processing  
system, the data selected when using the wireless internet-  
connected data processing system.

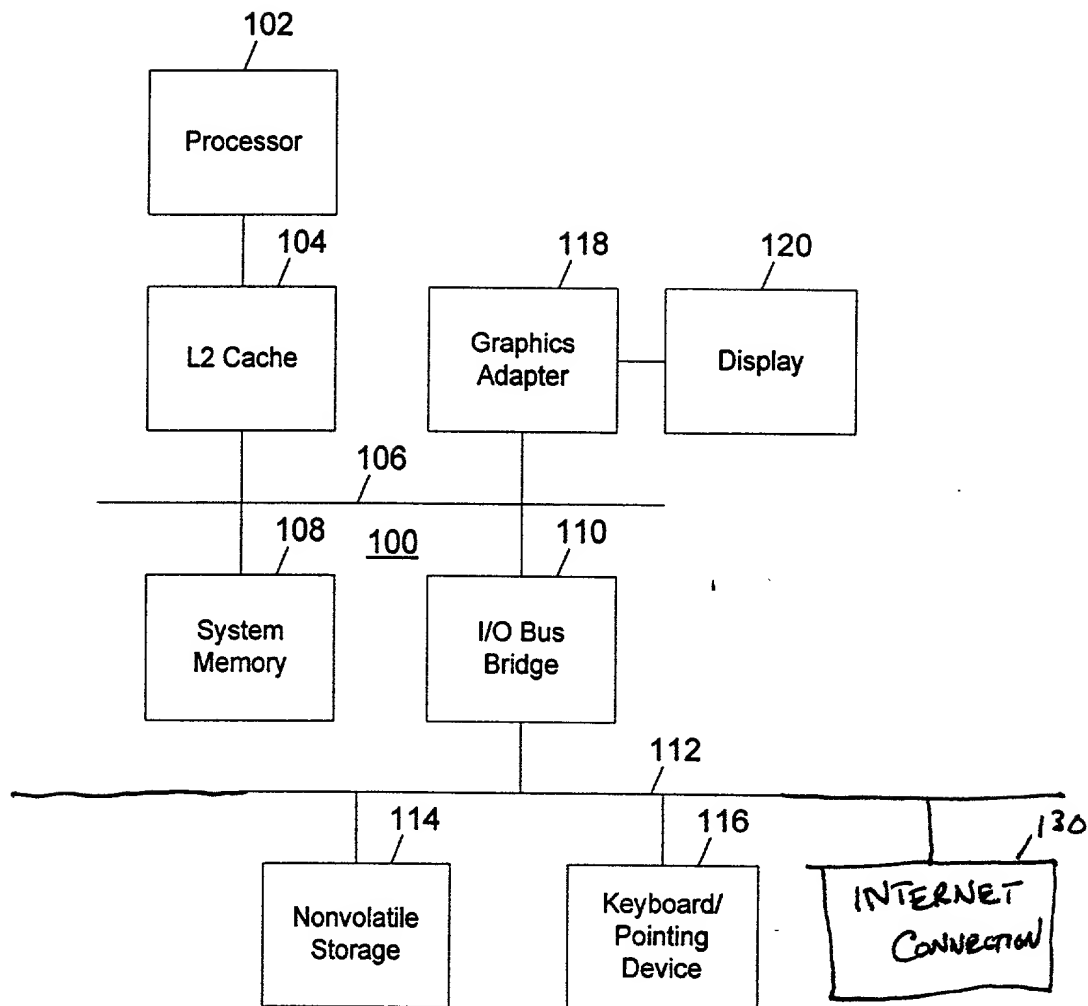


Figure 1A

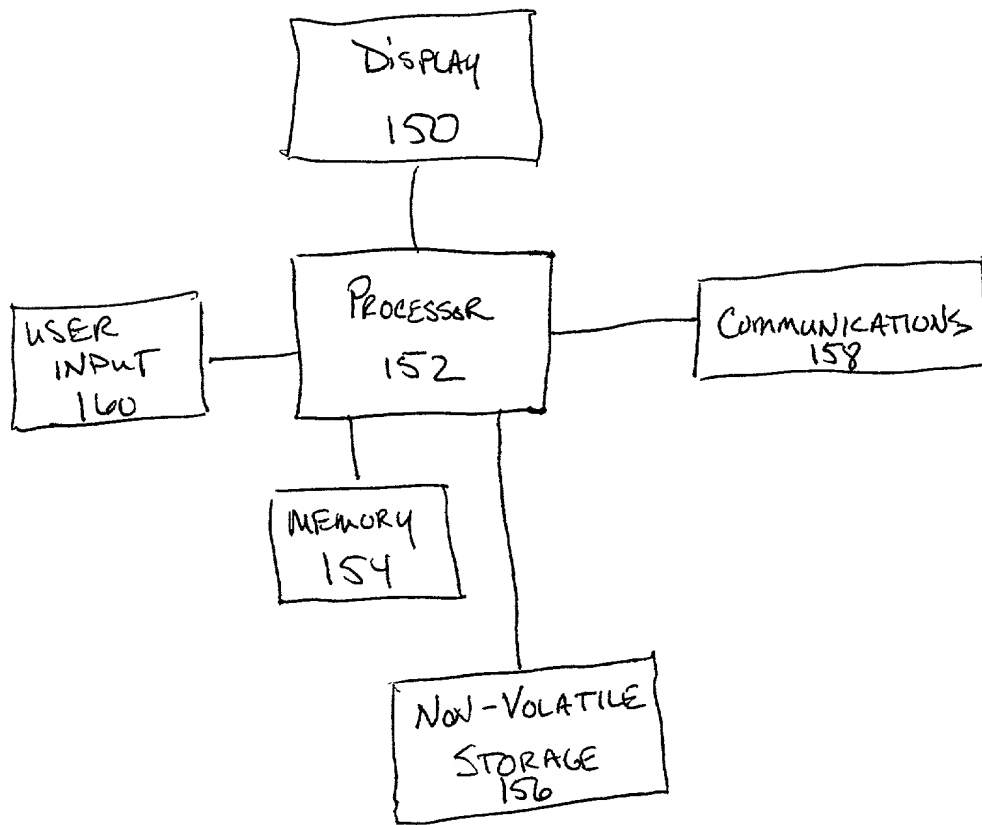


FIG 1B

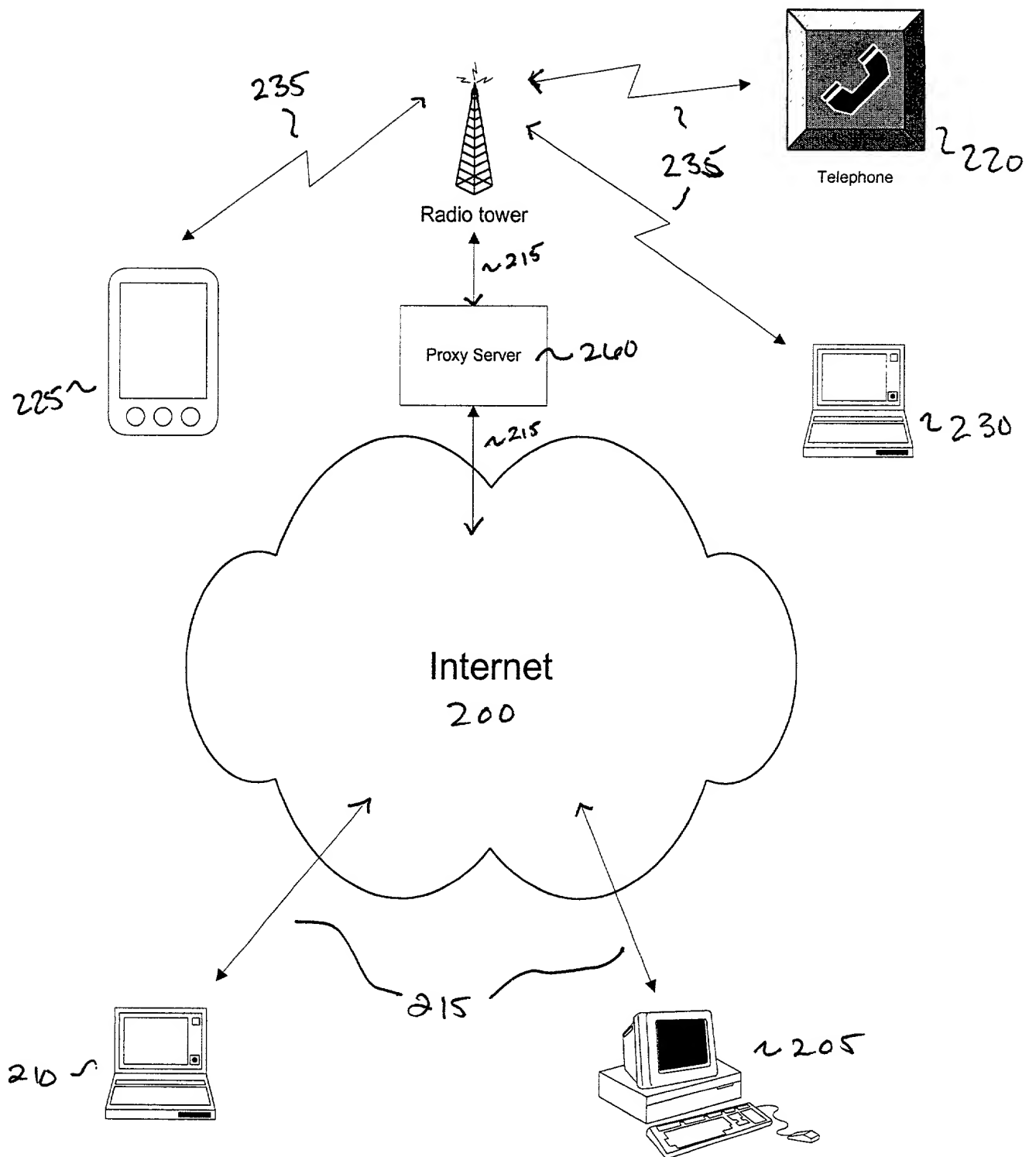


Figure 2

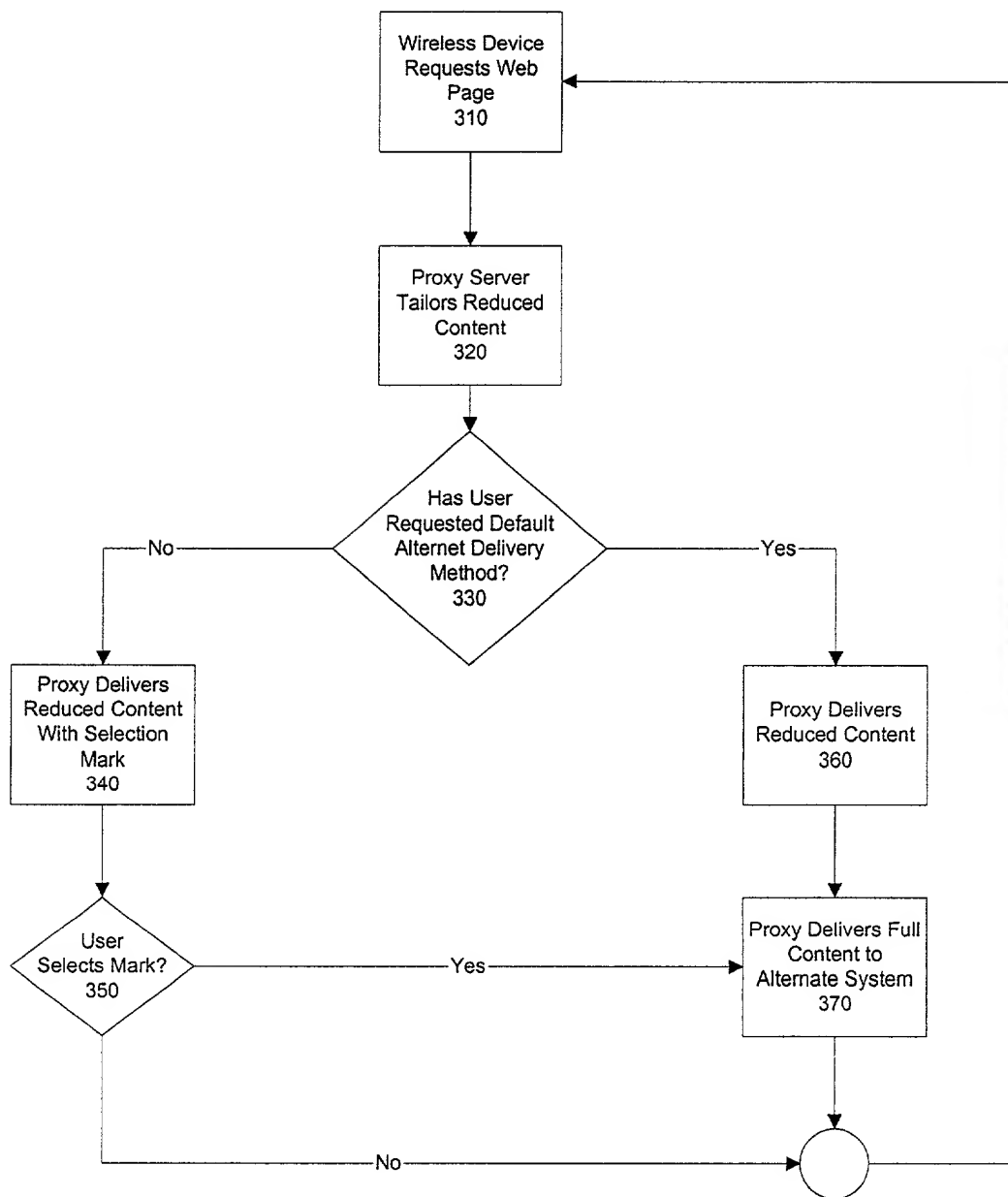


Figure 3

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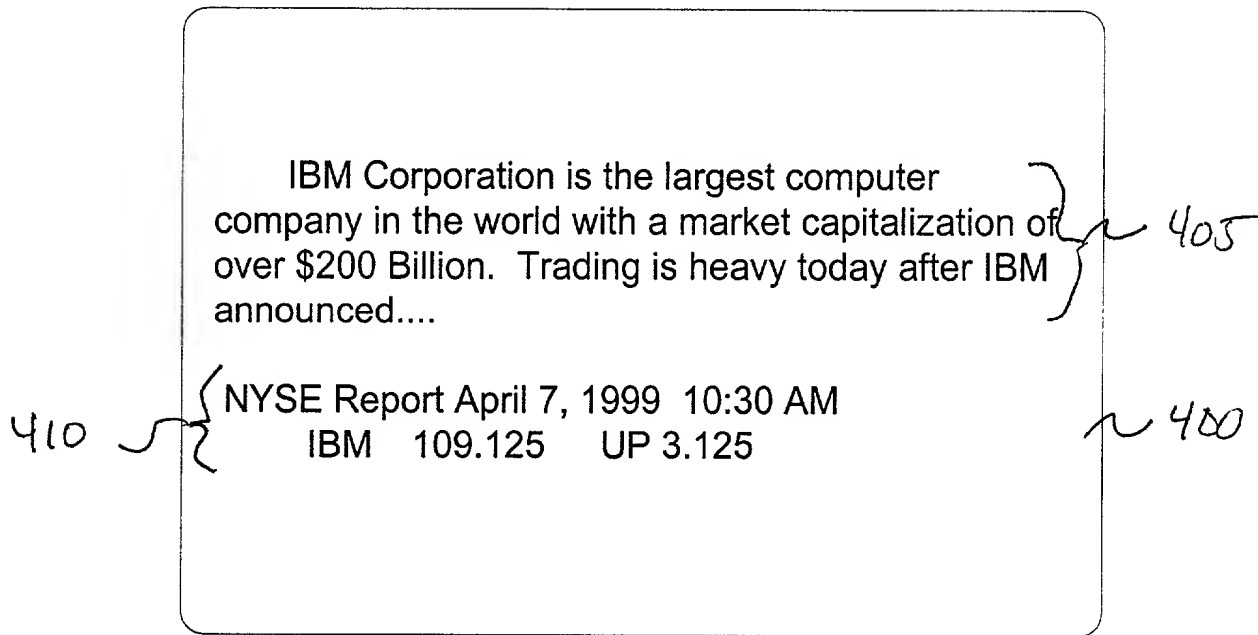


FIG 4A

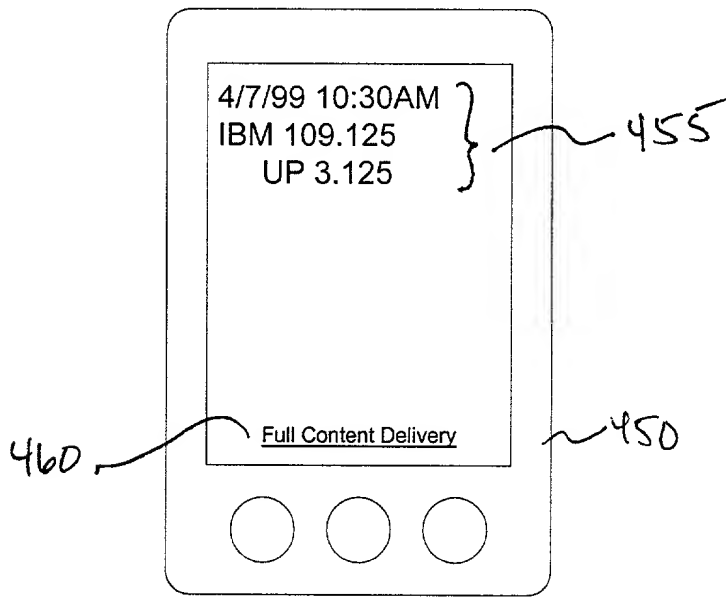


FIG 4B

**DECLARATION AND POWER OF ATTORNEY FOR  
PATENT APPLICATION**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled

SENDING FULL-CONTENT DATA TO A SECOND DATA PROCESSING SYSTEM WHILE VIEWING  
REDUCED-CONTENT DATA ON A FIRST DATA PROCESSING SYSTEM

the specification of which (check one)

X is attached hereto.

\_\_\_ was filed on \_\_\_\_\_  
as Application Serial No. \_\_\_\_\_  
and was amended on \_\_\_\_\_  
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

|                               |                    |                           |                  |
|-------------------------------|--------------------|---------------------------|------------------|
| Prior Foreign Application(s): |                    |                           | Priority Claimed |
| _____<br>(Number)             | _____<br>(Country) | _____<br>(Day/Month/Year) | ___ Yes ___ No   |

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information material to the patentability of this application as defined in Title 37, Code of Federal Regulations, §1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

|                                 |                        |                   |
|---------------------------------|------------------------|-------------------|
| _____<br>(Application Serial #) | _____<br>(Filing Date) | _____<br>(Status) |
|---------------------------------|------------------------|-------------------|

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorneys and/or agents to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

DOCKET NUMBER: AUS990913US1

John W. Henderson, Jr., Reg. No. 26,907; Thomas E. Tyson, Reg. No. 28,543; Robert M. Carwell, Reg. No. 28,499; Jeffrey S. LaBaw, Reg. No. 31,633; Douglas H. Lefevre, Reg. No. 26,193; Casimer K. Salys, Reg. No. 28,900; David A. Mims, Jr., Reg. No. 32,708; Mark E. McBurney, Reg. No. 33,114; Volel Emile, Reg. No. 39,969; James H. Barksdale, Jr. Reg. No. 24,091; Anthony V. England, Reg. No. 35,129; Leslie A. Van Leeuwen, Reg. No. 42,196; Christopher A. Hughes, Reg. No. 26,914; Edward A. Pennington, Reg. No. 32,588; John E. Hoel, Reg. No. 26,279; and Joseph C. Redmond, Jr., Reg. No. 18,753; Marilyn S. Dawkins, Reg. 31,140; Andrew Mitchell Harris, Reg. No. 42,638; Richard N. McCain, Reg. No. 43,785; Andrew J. Dillon, Reg. No. 29,634; Max Ciccarella, Reg. No. 39,454; Jack V. Musgrove, Reg. No. 31,986; Daniel E. Venglarik, Reg. No. 39,409; Brian F. Russell, Reg. No. 40,796; John G. Graham, Reg. No. 19,563; Matthew W. Baca, Reg. No. 42,277; Justin M. Dillon, Reg. No. 42,486; Antony P. Ng, Reg. No. 43,427; Steven Lin, Reg. No. 35,250; Matthew S. Anderson, Reg. No. 39,093; Sidney L. Weatherford, Reg. No. P45,602; and Mike Noe, Reg. No. 44,975.

Send correspondence to: Andrew J. Dillon, FELSMAN, BRADLEY, VADEN, GUNTER & DILLON, LLP, Lakewood on the Park, Suite 350, 7600B North Capital of Texas Highway, Austin, Texas 78731, and direct all telephone calls to Andrew J. Dillon, 512/343-6116.

FULL NAME OF SOLE OR FIRST INVENTOR: Rabindranath Dutta

INVENTORS SIGNATURE: Rabindranath Dutta DATE: April 3, 2000

RESIDENCE: 3401 Parmer Lane W. #835  
Austin, Texas 78727

CITIZENSHIP: India

POST OFFICE ADDRESS: same